

PHYSICS: QUANTUM COMPUTING, MS

This is a named option in the Physics MS. (<http://guide.wisc.edu/graduate/physics/physics-ms/>)

The MS in Physics–Quantum Computing (MSPQC) is an intensive professional master’s degree designed to provide flexibility to students. It can be completed in one calendar year (three semesters) or it can take up to six semesters on a part-time basis. The program provides students with a thorough grounding in the discipline of quantum information and quantum computing. It begins with a study of the relevant parts of quantum theory, and proceeds to quantum gates, measurements, algorithms, quantum error correction, and decoherence. Quantum communication theory and the secure transmission of information are also covered. The supporting areas of statistical mechanics, solid-state physics, and atomic physics form part of the classroom training. Just as important, the program gives students a mastery of advanced lab skills involved in quantum computation and participation in mentored research projects is required.

Students who graduate from this program will have the tools to succeed as researchers or program managers in a quantum computing or quantum technologies enterprise. They may also use the program as a springboard to PhD programs in physics or related areas. MSPQC students interested in applying to the PhD at UW–Madison must adhere to all PhD admission requirements and deadlines.

The program collaborates closely with faculty across campus that are involved in Quantum Information Science and Technology research.